PSYCHOLOGICAL SCOPE OF PATIENTS TOWARD ORTHOGNATHIC SURGERY

Dissertation submitted to

THE TAMILNADU Dr. M.G.R. MEDICAL UNIVERSITY

In partial fulfillment for the Degree of

MASTER OF DENTAL SURGERY

BRANCH III

ORAL AND MAXILLOFACIAL SURGERY

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CERTIFICATE

This is to certify that this dissertation titled "**PSYCHOLOGICAL SCOPE OF PATIENTS TOWARD ORTHOGNATHIC SURGERY"** is a bonafide record of work done by **Dr .M. GEETHA** under my guidance during her postgraduate study period 2013 - 2016.

This dissertation is submitted to **THE TAMILNADU Dr. M.G.R. MEDICAL UNIVERSITY,** in partial fulfillment for the degree of **MASTER OF DENTAL SURGERY** in **Branch III – ORAL AND MAXILLOFACIAL SURGERY**.

It has not been submitted (partially or fully) for the award of any other degree or diploma.

Professor, HOD and Guide **Principal**

Dr. L.DEEPANANDAN, M.D.S.,

Department of Oral & Maxillofacial surgery,
Sri Ramakrishna Dental College & Hospital,
Coimbatore.

Dr. V. PRABHAKAR, M.D.S.,

Sri Ramakrishna Dental College & Hospital,
Coimbatore.

Candidate

Dr. M. GEETHA

Department of Oral & Maxillofacial surgery,
Sri Ramakrishna Dental College & Hospital,
Coimbatore.

Date:

Place: Coimbatore

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Dr. M.Geetha

ABSTRACT

AIM

Orthognathic surgery is becoming a common treatment alternative in the correction of dentofacial deformities. Aesthetic improvement has been reported to be a strong motivating factor for many persons who decided to undergo orthognathic surgery. Even though orthognathic treatment changes the dentofacial disharmony, many patients refrain from surgery or select orthodontic treatment only. The aims of the study to evaluate psychological/social/economical factors for selection of orthodontic treatment, selection both surgical orthodontic treatment and refrain from both treatment.

METHODOLOGY

Patients with dentofacial deformities with an indication for orthognathic intervention in the year 2013-2016 were included in the study. Patients were evaluated with cephalogram using COGS analysis by Burstone et al. A questionnaire proforma was given to the patients and were asked to self complete the questionnaire. 52 patients were included in our study. Out of 52 patients 17 were male and 35 were female patients. All 52 patients were asked to self complete the questionnaires. The questionnaires contain demographic data and 5 oral health related quality of life questionnaire and 20 orthognathic quality of life questionnaire. The questionnaire was evaluated and statistically assessed.

ABSTRACT

RESULTS

The present study was conducted to evaluate the psychological/social/economical factors which influence them to make decision for surgical treatment and refrain from treatment. In our study no female and male difference for selecting particular treatment and declining particular treatment was found. People with younger age group (20-23 years) were willing to undergo surgical orthodontic treatment and more mandibular angle and mandibular retrusive patients selected surgical orthodontic treatment whereas maxillary protrusive patients select orthodontic treatment. There was correlation between psychological factor and social factor selection of orthodontic treatment in our study. Many patients refrain from any type of treatment because of psychological and economic factors.

CONCLUSION

A patient wants a cure but none will enjoy the surgical procedure. Even though patients have skeletal disharmony most of them refrain from treatment due to psychological factor (risk of nerve injury, fear and discomfort of surgery, unwanted side effect) and cost factor. To overcome this difficulties patients motives and fear are explored during consultation and surgeons must work hard and make surgical treatment are more affordable and reinforce the importance and value of orthognathic surgery to insurance providers and make better arrangement for financial assistance.

KEYWORDS: Orthognathic surgery, psychological factor, social factor, economic factor.

LIST OF ABBREVIATIONS

COGS	Cephalometric for orthognathic surgery
Max inc-NF angle	Maxillary incisor –Nasal floor angle
Mand inc-MP angle	Mandibular incisor-Mandibular plane angle
MP-HP angle	Mandibular plane-Horizontal plane angle

CONTENTS

INTRODUCTION

Orthognathic surgery is becoming common treatment alternative in the correction of dentofacial deformities. Person with significant jaw malrelationship with limitation due to lack of growth have alternative treatment in orthodontic mechanics alone or surgical orthodontic approach.[1]

Surgical jaw repositioning often allows most ideal correction of etiologic factors whereas orthodontic tooth movement alone is directed towards compensating for the skeletal malrelationship and preoperative orthodontics is to remove any dental compensation and allow for maximal skeletal correction to achieve optimal facial form.[2] The selection of appropriate treatment plan is based not only upon the clinician assessment but the final result with regard to aesthetics, function, and stability.[1]

Aesthetic improvement has been reported to be a strong motivating factor for many persons who decide to undergo orthognathic surgery.[3] Patient with a facial deformity exhibits higher level of psychological stress than those without a deformity particularly in social situation. People who have disfigurement or deformity often experience problem in social interaction leading to lowered self esteem and tendency to become introverted and relusive.[4] Appearance and personality may be related to the degree that facial changes produced by orthognathic surgery which improve not only self concept values but also scores in areas of psychopathology [5]and improve self confidence and self image. [6]

A patient's decision to undergo orthognathic surgery is based on multiple needs, motives, social, psychological concerns, cultural values and cost of treatment.

Recovery time and perceived benefits can encourage a patient to pursue surgery or discourage him/ her.[7]

Orthognathic surgical treatment is used to correct severe jaw discrepancy using a combination of fixed orthodontic appliance and jaw surgery. The main indication for this treatment are dentoskeletal disproportion that are so severe that they cannot be corrected using less complex treatment options such as orthodontic appliance.[8]

Its generally accepted in literature that the main benefits of orthognathic treatment are likely to be psychological in nature and majority of patients who seek treatment are mainly concerned about their dentofacial esthetics.[9]

Even though orthognathic treatment changes the dentofacial disharmony there has been decline in the number of orthognathic surgical cases. The primary reason for this decline is cost factor and patient perceive that orthognathic surgery is too expensive and seek alternative treatment modalities.

AIMS & OBJECTIVES

The purpose of the study

1) To evaluate the psychological /social/economic factors for patients selecting orthodontic and surgical treatment.

2) To evaluate the psychological/social/economic factors for patients selecting orthodontic treatment only.

3) To evaluate the psychological/social/economic factors for patients not willing for any treatment.

REVIEW OF LITERATURE

Stephen M.Auerbach et al; (1984)[44] stated that Most studies (90%) were motivated to undergo surgery by combination of aesthetic and functional goals. Orthognathic surgery patient in the present study were in normal range in proportion measures of psychological adjustment and self esteem. Thus they were well adjusted prior to surgery. Great majority of patients were satisfied with the result of surgery. Some patients not only have a need for detailed preparation, by the way how the surgeon relates to them interpersonally especially for male.

Rebecca Bell et al; (1985) [1] stated that self perception of their own profile might have on a person's decision to undergo surgical treatment. Patients who elected surgery anteroposterior jaw discrepancy and chin prominence were more than those patients who decided against surgery. Patient who decided to have surgery have profile that deviated from the ideal. Patient who decided against surgery had profile as being more within a normal range. Oral surgeon and orthodontist evaluated the facial profile similarly, but differed in likelihood of recommending surgical correction. Lay persons rating of an individual profile were similar to rating given by dental specialist in orthodontics and oral surgery. But they tend to perceive others as being normal than do dental specialist individuals perceive their own profile differently than the orthodontics and oral surgeon and lay person.

Carolyn M.Flanary, George M. Barnwell, John M. Alexander; (1985)[10] stated that one half of patients initial reluctance toward having orthognathic surgery especially whose motive for surgery is functional rather than aesthetic. Patient with an appearance rationale for surgery have less difficulty in adjusting to their appearance change than those with strong functional motives. Persons are more likely to take a

risk to improve their appearance than to improve their dental function. Older patients demonstrated more concerned about surgical risks than younger patients. More females will desired to speak with patients who have undergone the same procedure. Prior to their own surgery and who receive inadequate explanation were more likely to be emotionally unprepared. It's our contentation that more informed the patient and family were the greatest the ease of post surgical adjustment and the more appropriate the expectation for surgical outcome.

H.Asuman Kiyak; (1986)[5] stated that the results of the study suggested that surgery did in fact produce improvement in self esteem, and body image particularly in the patients evaluation of his /her facial attractiveness and in the importance attached to physical features. Patient who underwent surgical orthodontic treatment reported a significant improvement in self esteem, at the time of fixation removal with slight decline 6 month after surgery. Surgery was also found to be more effective than orthodontic treatment alone in enhancing body image. Surgical or conventional orthodontic treatment can improved significantly the patient's evaluation of self although surgery appeared to have more impact. The results were not be happy to all patients who underwent conventional orthodontic treatment but only to those who were candidates for surgery.

Barry B.J. Lovius et al; (1990)[18] study findings demonstrated positive psychological changes postoperatively. The largest improvement in bodily satisfaction was found with teeth and jaw measure. The body satisfaction scale thus demonstrated a positive psychological impact of surgery. The present study also revealed a lesser tendency for a positive effect on social anxiety as revealed by social avoidance and distress and

fear of negative evaluation data. Orthognathic surgery provides specific improvement in body image with little effect on psychopathology.

Carolyn M.Flanary et al; (1990)[40] stated that after orthognathic surgery positive changes were found in the abnormal personality dimension of general mal adjustment, psychosis, and personality disorder and neurosis. These psychosocial profile changes represented overall healthy psychological adjustment after the surgery. There was significant improvement in self concept, self esteem, self satisfaction, self identity, behavioural self, physical self, personal self, family self, social self, and self conflict. Orthognathic surgery by altering facial appearance seem to have impact on quality of mental health.

Jorgan Garvill et al; (1992)[28] stated that the patient's own reasons for undergoing surgical treatment.1) Functional problem connected with chewing and biting 2) Craniomandibular symptoms 3) facial appearance 4) Gastrointestinal problem. The decision to undergo surgical treatment was a decision taken after a long period of time and half of patients were informed by others. Women experienced more facial appearance problem than men. This is reason for women selecting more orthognathic surgery than men and the patient who had made their decision to undergo surgical orthodontic treatment for dentofacial deformity. The patient who asked for treatment or refrained from treatment after they had been informed is a quantity which will be subject of further investigation.

Janice J.Wilmot et al; (1993)[3] inspite of recommendation for orthognathic treatment by dental specialist as indicated by cephalometric measurements, self perception of profile are more important in the patients decision to undergo orthognathic treatment.

Treatment of patient with dentofacial deformity was not to be based upon cephalometric analysis alone. The patients perception of his or her facial profile and need for treatment were not necessarily consistent with the clinician diagnosis.

S.Y. Shalhoub; (1994)[26] stated that the major reasons for undergoing surgical treatment were 30% functional impairment, 40% aesthetics reasons and 20% combined functional and aesthetic reasons. Females were more concerned about facial appearance while males were more concerned about functional problems. In younger patient (Both male and female) facial appearance was the most important consideration. Females mentioned more social and personal problem than males.

P.M Finlay, J.M Atkinson, K. F. Moos; (1995)[41] stated that these result showed that group of patient presenting in the west Scotland for orthognathic surgery are well adjusted psychologically. Only possible predictor for dissatisfaction is by high neuroticism. There was no decline in satisfaction and self esteem between 6 month and one year. Dissatisfied group reported they were given two little information about orthognathic surgery.

S.J Cunningham, N.P Hunt, C.Feinmann; (1996)[3] stated that preoperative respondents underestimated the changes with respect to overall life changes, general appearance and performance at work or college. The patient satisfaction following joint orthodontic and surgical treatment is high and that significant changes in many aspects of their quality of life occur. There was significant difference in depression or anxiety between pre and post operative group.

Edsard Van steenbegen , Ravindra Nanda; (1996)[25] stated that those with high self concept were more likely satisfied with their facial appearance. Patients with low self concept were less satisfied with the outcome of orthognathic surgery. The high correlation between the patient's psychological distress and satisfaction with facia appearance and self concept indicated the importance of distress in orthognathic surgery patient.

Ceib phillips,Hillary L.Broder, M.Elizabeth Bennett; (1997)[31] stated that older and younger patients appeared to be equally concerned about appearance and social and interpersonal issues. Older patients were more concerned about functional problem and oral health than younger patient. Males rated social well being more strongly than females, higher proportion of males have stronger social well being motivation. Although male and female desired to had change in appearance. Males more than females expected to change in facial appearance to translate intersocial and interpersonal gain. Overall decision to accept surgery appeared to relate to the individuals internationalization of social interaction, cultural, family, peer values and perceive impact on quality of life. Motivation for treatment can also aid in practioner in the identification of unrealistic expectation.

L.H.H Cheng , D.Roles, M.R Telfer; (1998)[43] stated that body satisfaction scale, social avoidance scale, and distress scores and personality inventory scores and neuroticism scores to assess the psychological changes after orthognathic surgery . They all reported improvement. Function of this teeth and jaw improved rather than appearance. This indicated that orthognathic surgery was not merely done for aesthetic reasons. But was important when combined with orthodontic treatment in correcting severe malocclusion which improved ability to chew.

Ceib Phillips, Elizabeth Bennett, Hillary L. Broder; (1998)[32] stated that males and females exhibit on average, a mild increase in psychological distress on interpersonal sensitivity, obsessive compulsive and psychological dimension. A quality of patients qualified as a positive diagnosis psychiatric disorder. Removal of item form the interpersonal sensitivity dimension that might be related to the presence of a moderate to severe dentofacial disharmony, reduced the percentage of positive changes by only 2%. Orthodontist and oral and maxillofacial surgeons should be alert to symptoms reflecting psychosocial distress as well as psychiatric morbidity in patient with dentofacial disharmony.

Semilla M. Rivera et al (2000)[7] showed that change in appearance was the reason most frequently reported for orthognathic surgery followed by functional improvement. 28% of patients underwent orthoganthic surgery to eliminate TMD symptoms. No significant differences were found for reasons related to TMD symptoms. Females underwent orthognathic surgery to reduce TMD symptoms significantly more frequently than males. Patient most often elected to undergo orthognathic surgery in order to correct aesthetic or functional problem or to relieve TMD symptoms.

Oriagh T.Hunt et al; (2001)[12] stated that orthognathic surgery had some beneficial psychosocial effects. However research studies completed in this area report a wide variety of psychosocial benefits including improved self esteem, self confidence, body image, facial attractiveness, personality, social functioning, emotional stability, overall mood, and ability to mix socially and life changes such as better personal relationship, and employment prospects reduction in anxiety and self consciousness.

JK Vargo, M Gladwin, P Ngan; (2003)[35] experts provide reliable rating of certain morphological features such as excessive gingival display, classifying patient facial form and mandibular position when evaluating patient for orthognathic surgery treatment. The profile attractiveness rating and patient expected change in self consciousness were the strongest for a patient motivation for orthognathic surgery treatment. These results suggest that patient's motive for treatment was not necessarily related to objectively determined. Patients decided to seek attractiveness because they see what other lay persons see and are directly and indirectly affected by areas reacted to their appearance.

A.C. Williams et al; (2005)[27] stated that females were more likely to have sought treatment to improve their self-confidence and /or their smile. Males however wanted treatment not only to improve their facial and dental appearance but also because they believe that surgery will prevent dental health problem. Many patients who underwent orthognathic treatment have suffered social problems in the past. Some of the patients were unaware of the problem with their teeth until they were altered by their dentist.

Karen J, Juggins, Flona Nixon and Susan J. Cunningham; (2005)[12] stated that maxillofacial surgeon rating greatest need for treatment based on facial appearance and function. Orthodontist and maxillofacial surgeon rated a greatest need for orthognathic treatment based on overall treatment need than patients larger variance existed within both orthodontist and maxillofacial surgeon. But neither group appeared to exhibit more variability than other. There was no significant difference between the clinician group rating perceive treatment need based on dental

appearance or overall need for treatment but surgery tended to rate a greater need than orthodontist.

Claudia crilly Bellucci, Kathleen A. Kapp-simon; (2007)[11] stated that adolescents undergoing facial skeletal surgery should have a screening to assess overall emotional and psychosocial functioning and psychological readiness for surgery. The motivation for surgery can have an impact on the patients perception of surgical outcome particularly if expectation exceeded the result many adolescents experienced some level of anxiety and distress about facial skeletal surgery similar to children and adults many adolescents were anxious about surgery. With increasing number of adolescents and young adults seeking orthodontic treatment there is corresponding increased number of facial skeletal surgical procedure. Adolescence is a vulnerable period in emotional development and stress of surgery further add this burden. Unlike adults the interaction between adolescent and caregiver needs to be assessed in the overall treatment plan for successful outcome of adolescent's perspective.

Brian B.Farrell , Myron R.Tucker; (2009)[19] stated that there has been decrease in number of orthognathic surgery cases over the past 15 to 20 years. This decrease is the result of decrease coverage of major medical insurance companies and increase health care cost. Modification of some procedures may increase orthognathic surgical cases. When patients have an accurate perception of the value and benefit of orthognathic surgical treatment they are often willing to pay for this type of treatment and surgeons make effort to reduce the cost of surgery by selecting choice of procedure and fixation method and outpatient surgical services.

Hazem T.Al-Ahmad et al; (2009)[24] stated that presurgery groups reported higher negative impacts compared with other groups. Health related quality of life and condition specific quality of life levels similar to patients who completed surgical treatment and those in control group . This group of patients seem to adjust to their deformity, thus maintaining level of quality of life similar to normal individuals. One therefore cannot assume that all people with dentofacial deformity have a poorer quality of life than those without deformity. However we cannot exclude the possibility that some patients in the declined surgery attempted to deny negative impact of such deformity on the perceived quality of life. Orthgnathic surgery has positive impact on patients health related and condition specific quality of life. During preparation of patients for orthognathic surgery, more emphasis required at the patient preparation stage to understand the emotional, psychological studies and expectation of patient in addition to aesthetic and functional needs.

D.M Williams et al; (2009)[38] stated that orthognathic patients were psychologically normal except that they had more dissatisfaction with their facial appearance. Patient having orthognathic surgery has a normal psychological state and self perception, but is specifically dissatisfied with the appearance of face. Orthognathic patients were more anxious than the control group. By using the hospital anxiety and depression scale found out the desire for surgery caused by a genuine physical abnormality rather than a perceived exaggerated aesthetic problem. Any patient who seeks orthognathic treatment because they have a personality that causes them to dwell on their appearance.

Wing Shan Choi et al; (2010)[23] did not find any significant differences in the results obtained from all approaches between male and female patients and there were no significant differences in quality of life, outcome among patients having different types of dentofacial deformity at all time points. There was significant improvement in quality of life as post surgical and post orthodontic treatment indicated a health gain from the treatment, and significant improvement in mental health and oral health noted. Significant improvement in quality of life occurred after combined orthodontic surgical treatment. A transient decrease in quality of life was observed during the early postoperative period, probably due to surgical morbidities which resolved gradually in most cases.

Donald J.Burden et al; (2010)[22] stated that skeletal class III and class II patients had poorer scores for all of the psychological measures particularly for anxiety and self esteem than control group. Skeletal class II patients have more anxiety and rated more unattractive than skeletal class III profile. Skeletal class II patients receive a greater negative feedback about the dentofacial appearance than skeletal class III. The study stated that individual variation does exist and that some prospective orthognathic patient will be experiencing severe psychological desires that require treatment.

Outi M.E Alanko, Anna -Lisa Svedstrom-Oristo &Martti T.Tuomisto; (2010)[39] states that the main motives for seeking treatment were improvement in self confidence, appearance, oral function. Patients were not found to suffer from psychiatric problem. The main motivating factor for seeking treatment is improvement in self confidence, aesthetics, and functional state. Surgical orthodontic patient did not have psychiatric problem or were not psychologically distressed. The

vast majority of patients were satisfied with the result. Improvement in quality of life was noted 6 month after surgery.

Michael proothi, Stephanie J. Drew and Stephen A.Sachs; (2010)[30] stated that female patients were presented for surgical consultation more than male patients. Patient who underwent orthognathic surgical evaluation for treatment of skeletal deformity had a primary complaint that was functional rather than aesthetic. 76% of patients stated their appearance was affected by their condition. 15% stated that it was their primary motivation for undergoing surgical evaluation. 37% stated this bite was primary motivator for seeking treatment. Patients with functional dentofacial deformity were regarded as having functional problem and not just aesthetic concerns.

Chris Johnston et al; (2010)[8] stated that orthognathic patients were significantly less happy with the dental and facial appearance than controls. Class II patients reported lower happiness for dental appearance than class III subjects and controls. Female patients were more likely to be unhappy with dental appearance.

Julia Cadogan, Ian Bennun; (2011)[16] stated patients who decide to proceed with this lengthy process are likely to be highly motivated to improve their quality of life. All participants committed to treatment and had operation was mainly because the way they looked had a detrimental effect on their lives. Adjustment to a changed appearance is not a smooth transition particularly during acute phase when the participants found it difficult to recognise themselves to evaluate the changes to their faces without help of others.

Jesper Oland et al; (2011)[42] stated that oral motives were ranked highest followed by appearance motives and social motives and disease prevention motives. Fulfilment of motive greatest score obtained for oral function and second for appearance. For both self concept and social interaction was statistically significant improvement was found T0 to T1. Patients who had undergone bimaxillary surgery were either very satisfied compared with patients who had undergone only maxillary or mandibular. Oral function is the patient's primary motive for seeking surgical orthodontic treatment. Patients who had undergone surgical orthodontic treatment perceived psychosocial improvement and advances in self work and esteem. 87% patients have overall satisfaction and 65% of patients have lower willingness to undergo treatment again or to recommend treatment to others. The greater willingness to undergo treatment again and to recommend treatment to others could have been because they were still receiving positive effect.

Leila Khamashta-Ledezma; (2012)[2] The study suggested that the preliminary assessment should be improved. Patient should be informed about and prevented from undergoing orthodontic treatment that may limit future surgical management, otherwise they may have to face repeated orthodontic treatment unexpected operation, potential limitation to outcome of surgical treatment. Initial orthodontic assessment of patient is crucial and needs to be improved through training and education. An orthognathic referral guide could be developed to help identify at the outset patient who may need to be informed of the possibility of future combined treatment.

Flona S.Ryan, Matthew Barnard, Susan J.Cunningham; (2012)[6] stated that a dentofacial deformity can have a significant impact on person's life and that might not solely be related to the defect itself but reflect the person's past experiences, psychological constitution and personality. As result the degree of impact is not necessarily proportional to the extent of deformity . Therefore the impact of problem might be more complex than is immediately obvious to the clinician. The range of impact of dentofacial deformity and the motivation for treatment can be classified as either exclusively practical, exclusively psychological or the combination of two. The range of motivating factor together with triggers for accessing treatment and source of motivation generally linked to impact of condition.

Niles Hagensil, Arild Stenvik, Lisen Espeland; (2013)[29] stated more than half of unoperated subjects reported that they declined surgery due to lack of severity of functional problem related to chewing and or due to risk of side effects and more than 50% listed the risk of nerve injury and risk of unwanted side effects, burden of care and general reluctance to being operated. Both long term orthodontics in adulthood and discomfort and risk related to surgery are factors that may discourage the patient. The operated patients elected surgery inorder to improve 73% chewing, 83.7% tooth position, and 69.9% facial appearance. About 40% of unopeated respondents were dissatisfied with their masticatory function, and 50% of their dental appearance and 30% with their facial appearance. More than 90% operated sample perceived that they had great or some improvement related to chewing, tooth position and facial appearance.

Nicky D.Stanford, Tze Bill Lp, Justin Durham; (2014)[15] stated the concept of dentofacial normality as explored with each patient and three main themes were emerged. The component of dentofacial normality, the biopsychosocial impact of dentofacial abnormality and factors influencing patients conceptualization of dentofacial normality. For the component of dentofacial normality there was a general belief that a normal appearance would constitute a certain degree of uniformity in relation to the population as a whole even with mild irregularities. Pain was reported as one abnormal feature that motivated them to seek a consultation about this condition. Patient also clearly articulated that their deviation dentofacial normal had a negative effect on their social well being. Professional opinion and receives from family members, peers might also influence the patient views regarding normal appearance. Family members reassure the person that although they might believe there is a visible abnormality. Deviation from normal facial appearance resulted in a biopsychological impact.

MATERIALS & METHODS

STUDY DESIGN

Patients who need surgical correction for dentofacial deformities were selected and evaluated with cephalogram. A questionnaire proforma was given to assess the psychological and social and economic factors.

METHODS

Patients with dentofacial deformities with an indication for orthognathic intervention in year 2013-2016 were included in the study . Patient's were evaluated with cephalogram using COGS analysis by Burstone et al. A questionnaire proforma was given to the patients and were asked to self complete the questionnaire. The questionnaire proforma was evaluated.

INCLUSION CRITERIA

1) Patients with dentofacial deformities with an indication for orthognathic intervention.
2) Patients of 18-25 years of age were included.

EXCLUSION CRITERIA

1) Patients having syndrome
2) Patients with cleft lip and palate
3) Patients aged more than 25 years

QUESTIONNAIRE PROFORMA

All the 52 patients were asked to complete the demographic data and 5 oral health related quality of life questionnaire and 19 orthognathic quality of life questionnaire. Patient were asked to self complete the questionnaire. The questionnaire was evaluated and results were statistically assessed.

SAMPLE SIZE

In this study 52 patients were included out of 52, 17 were male patients and 35 were female patients.

FIGURES

FIGURE 1a

FIGURE 1b

FIGURE 1c

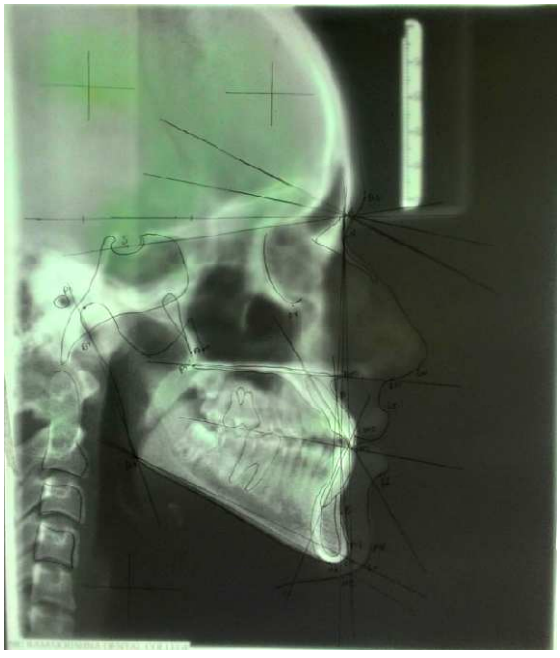

FIGURE 1d

FIGURE 2a

FIGURE 2b

FIGURE 2c

FIGURE 2d

FIGURE 3a

FIGURE 3b

FIGURE 3c

FIGURE 3d

FIGURE 4a

FIGURE 4b

FIGURE 4c

FIGURE 4d

RESULTS

The present study was conducted to evaluate the patient's decision to undergo orthodontic and surgical treatment and not willing for any type of treatment even though patient have malocclusion and evaluate the psychological, social, economical factors which influence them to make decision.

Frequencies

Frequency Table

TABLE NO .1a: Gender frequency

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	17	32.7	32.7	32.7
	Female	35	67.3	67.3	100.0
	Total	52	100.0	100.0	

TABLE NO. 1b: Age frequency

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 20 years	9	17.3	17.3	17.3
	Between 20 - 23 years	27	51.9	51.9	69.2
	Above 23 years	16	30.8	30.8	100.0
	Total	52	100.0	100.0	

Table No .1c: Occupation frequency

Occupation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Banking professional	1	1.9	1.9	1.9
	Beautician	1	1.9	1.9	3.8
	Biochemistry technician	1	1.9	1.9	5.8
	Nursing assistant	5	9.6	9.6	15.4
	PG trainee	1	1.9	1.9	17.3
	Staff nurse	8	15.4	15.4	32.7
	Student	28	53.8	53.8	86.5
	Supervisor	1	1.9	1.9	88.5
	Working in private sector	6	11.5	11.5	100.0
	Total	52	100.0	100.0	

Occupation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Student	30	57.7	57.7	57.7
	Employed	22	42.3	42.3	100.0
	Total	52	100.0	100.0	

TABLE NO . 1d: Inference frequency

Inference

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Mandibular Prognathism	2	3.8	3.8	3.8
	Mandibular retrognathism	15	28.8	28.8	32.7
	Maxillary and Mandibular prognathism	2	3.8	3.8	36.5
	Maxillary Prognathisam and Mandibular retrognathism	4	7.7	7.7	44.2
	Maxillary prognathism	16	30.8	30.8	75.0
	Maxillary retrognathism	6	11.5	11.5	86.5
	Maxillary Retrognathism and Mandibular prognathism	3	5.8	5.8	92.3
	Others	4	7.7	7.7	100.0
	Total	52	100.0	100.0	

TABLE NO .1e: Frequency in Selection of treatment

Treatment

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Doesn't want any treatment	12	23.1	23.1	23.1
	Orhtodontic and Surgical Treatment	14	26.9	26.9	50.0
	Orthodontic Treatment only	26	50.0	50.0	100.0
	Total	52	100.0	100.0	

TABLE NO. 1f: Frequency in reason for not willing for surgery

Reason for not willing for surgery

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Willing for Orthodontic or Orthodontic and SurgicalTreatment	40	76.9	76.9	76.9
	Psychological factor	2	3.8	3.8	80.8
	Social factor	2	3.8	3.8	84.6
	Economic factor	4	7.7	7.7	92.3
	Psychological and Social factor	2	3.8	3.8	96.2
	Psychology and Economic factor	2	3.8	3.8	100.0
	Total	52	100.0	100.0	

TABLE NO. 1g: Frequency in reason for selecting orthodontic and surgical treatment

Reason for selecting orthodontic and surgical treatment

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Willing for OrthodonticTreatment only	26	50.0	50.0	50.0
	Not willing for any Treatment	12	23.1	23.1	73.1
	Psychological factor	5	9.6	9.6	82.7
	Psychological and Social factor	9	17.3	17.3	100.0
	Total	52	100.0	100.0	

TABLE NO. 1h: Frequency in reason for selecting orthodontic treatment only

Reason for selecting orthodontic treatment only

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Willing for Orthodontic and SurgicalTreatment	14	26.9	26.9	26.9
	Not willing for any Treatment	12	23.1	23.1	50.0
	Psychological factor	8	15.4	15.4	65.4
	Social factor	5	9.6	9.6	75.0
	Economical factor	7	13.5	13.5	88.5
	Social and Economical factor	6	11.5	11.5	100.0
	Total	52	100.0	100.0	

Crosstabs

TABLE NO .2a: Gender * Age

Crosstab

			Age			
			Less than 20 years	Between 20 - 23 years	Above 23 years	Total
Gender	Male	Count	3	8	6	17
		% within Gender	17.6%	47.1%	35.3%	100.0%
		% within Age	33.3%	29.6%	37.5%	32.7%
	Female	Count	6	19	10	35
		% within Gender	17.1%	54.3%	28.6%	100.0%
		% within Age	66.7%	70.4%	62.5%	67.3%
Total		Count	9	27	16	52
		% within Gender	17.3%	51.9%	30.8%	100.0%
		% within Age	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.285[a]	2	.867
Likelihood Ratio	.283	2	.868
Linear-by-Linear Association	.094	1	.759
N of Valid Cases	52		

a. 1 cells (16.7%) have expected count less than 5. The minimum expected count is 2.94.

In the above value the chi square value is 0.285 for the association between gender and different age group is not significant

P = 0.867

It means that there is no significant association between gender and age of the patient

TABLE NO. 2b: Gender * Occupation

Crosstab

			Occupation		
			Student	Employed	Total
Gender	Male	Count	13	4	17
		% within Gender	76.5%	23.5%	100.0%
		% within Occupation	43.3%	18.2%	32.7%
	Female	Count	17	18	35
		% within Gender	48.6%	51.4%	100.0%
		% within Occupation	56.7%	81.8%	67.3%
Total		Count	30	22	52
		% within Gender	57.7%	42.3%	100.0%
		% within Occupation	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	3.649[b]	1	.056		
Continuity Correction[a]	2.595	1	.107		
Likelihood Ratio	3.810	1	.051		
Fisher's Exact Test				.076	.052
Linear-by-Linear Association	3.579	1	.059		
N of Valid Cases	52				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 7. 19.

TABLE NO.2c: Gender * Inference

Crosstab

			Inference								
			Mandibular Prognathism	Mandibular retrognathism	Maxillary and Mandibular prognathism	Maxillary Prognathisam and Mandibular retrognathism	Maxillary prognathism	Maxillary retrognathism	Maxillary Retrognathism and Mandibular prognathism	Others	Total
Gender	Male	Count	1	4	1	1	4	4	1	1	17
		% within Gender	5.9%	23.5%	5.9%	5.9%	23.5%	23.5%	5.9%	5.9%	100.0%
		% within Inference	50.0%	26.7%	50.0%	25.0%	25.0%	66.7%	33.3%	25.0%	32.7%
	Female	Count	1	11	1	3	12	2	2	3	35
		% within Gender	2.9%	31.4%	2.9%	8.6%	34.3%	5.7%	5.7%	8.6%	100.0%
		% within Inference	50.0%	73.3%	50.0%	75.0%	75.0%	33.3%	66.7%	75.0%	67.3%
Total		Count	2	15	2	4	16	6	3	4	52
		% within Gender	3.8%	28.8%	3.8%	7.7%	30.8%	11.5%	5.8%	7.7%	100.0%
		% within Inference	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.585[a]	7	.710
Likelihood Ratio	4.334	7	.741
N of Valid Cases	52		

a. 13 cells (81.3%) have expected count less than 5. The minimum expected count is .65.

TABLE NO. 2d: Gender * Treatment

Crosstab

			Treatment			
			Doesn't want any treatment	Orhtodontic and Surgical Treatment	Orthodontic Treatment only	Total
Gender	Male	Count	5	6	6	17
		% within Gender	29.4%	35.3%	35.3%	100.0%
		% within Treatment	41.7%	42.9%	23.1%	32.7%
	Female	Count	7	8	20	35
		% within Gender	20.0%	22.9%	57.1%	100.0%
		% within Treatment	58.3%	57.1%	76.9%	67.3%
Total		Count	12	14	26	52
		% within Gender	23.1%	26.9%	50.0%	100.0%
		% within Treatment	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.189[a]	2	.335
Likelihood Ratio	2.213	2	.331
N of Valid Cases	52		

a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is 3.92.

There is no significant association between gender and selection of treatment ,females are more willing for orthodontic treatment than male

TABLE NO. 2e: Gender * Reason for not willing for surgery

Crosstab

			Reason for not willing for surgery						
			Willing for Orthodontic or Orthodontic and Surgical Treatment	Psychological factor	Social factor	Economic factor	Psychological and Social factor	Psychology and Economic factor	Total
Gender	Male	Count	12	1	1	1	1	1	17
		% within Gender	70.6%	5.9%	5.9%	5.9%	5.9%	5.9%	100.0%
		% within Reason for not willing for surgery	30.0%	50.0%	50.0%	25.0%	50.0%	50.0%	32.7%
	Female	Count	28	1	1	3	1	1	35
		% within Gender	80.0%	2.9%	2.9%	8.6%	2.9%	2.9%	100.0%
		% within Reason for not willing for surgery	70.0%	50.0%	50.0%	75.0%	50.0%	50.0%	67.3%
Total		Count	40	2	2	4	2	2	52
		% within Gender	76.9%	3.8%	3.8%	7.7%	3.8%	3.8%	100.0%
		% within Reason for not willing for surgery	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.328[a]	5	.932
Likelihood Ratio	1.268	5	.938
Linear-by-Linear Association	.451	1	.502
N of Valid Cases	52		

a. 10 cells (83.3%) have expected count less than 5. The minimum expected count is .65.

There is no significant association between gender and not willing for any treatment

TABLE NO. 2f: Gender * Reason for selecting orthodontic and surgical treatment

Crosstab

			Reason for selecting orthodontic and surgical treatment				
			Willing for Orthodontic Treatment only	Not willing for any Treatment	Psychological factor	Psychological and Social factor	Total
Gender	Male	Count	6	5	1	5	17
		% within Gender	35.3%	29.4%	5.9%	29.4%	100.0%
		% within Reason for selecting orthodontic and surgical treatment	23.1%	41.7%	20.0%	55.6%	32.7%
	Female	Count	20	7	4	4	35
		% within Gender	57.1%	20.0%	11.4%	11.4%	100.0%
		% within Reason for selecting orthodontic and surgical treatment	76.9%	58.3%	80.0%	44.4%	67.3%
Total		Count	26	12	5	9	52
		% within Gender	50.0%	23.1%	9.6%	17.3%	100.0%
		% within Reason for selecting orthodontic and surgical treatment	100.0%	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.036[a]	3	.258
Likelihood Ratio	3.965	3	.265
Linear-by-Linear Association	2.386	1	.122
N of Valid Cases	52		

a. 4 cells (50.0%) have expected count less than 5. The minimum expected count is 1.63.

There is no significant association between gender and selection of orthodontic and surgical treatment

TABLE NO. 2g: Gender * Reason for selecting orthodontic treatment only

Crosstab

			Reason for selecting orthodontic treatment only						
			Willing for Orthodontic and Surgical Treatment	Not willing for any Treatment	Psychological factor	Social factor	Economical factor	Social and Economical factor	Total
Gender	Male	Count	6	5	2	1	1	2	17
		% within Gender	35.3%	29.4%	11.8%	5.9%	5.9%	11.8%	100.0%
		% within Reason for selecting orthodontic treatment only	42.9%	41.7%	25.0%	20.0%	14.3%	33.3%	32.7%
	Female	Count	8	7	6	4	6	4	35
		% within Gender	22.9%	20.0%	17.1%	11.4%	17.1%	11.4%	100.0%
		% within Reason for selecting orthodontic treatment only	57.1%	58.3%	75.0%	80.0%	85.7%	66.7%	67.3%
Total		Count	14	12	8	5	7	6	52
		% within Gender	26.9%	23.1%	15.4%	9.6%	13.5%	11.5%	100.0%
		% within Reason for selecting orthodontic treatment only	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.757[a]	5	.737
Likelihood Ratio	2.922	5	.712
Linear-by-Linear Association	1.418	1	.234
N of Valid Cases	52		

a. 9 cells (75.0%) have expected count less than 5. The minimum expected count is 1.63.

There is no significant reason for association between gender and selection of orthodontic treatment only

P value 0.737 It means that no difference in selecting orthodontic treatment between male and female

Crosstabs

TABLE NO. 3a: Age * Occupation

Crosstab

			Occupation		
			Student	Employed	Total
Age	Less than 20 years	Count	7	2	9
		% within Age	77.8%	22.2%	100.0%
		% within Occupation	23.3%	9.1%	17.3%
	Between 20 - 23 years	Count	18	9	27
		% within Age	66.7%	33.3%	100.0%
		% within Occupation	60.0%	40.9%	51.9%
	Above 23 years	Count	5	11	16
		% within Age	31.3%	68.8%	100.0%
		% within Occupation	16.7%	50.0%	30.8%
Total		Count	30	22	52
		% within Age	57.7%	42.3%	100.0%
		% within Occupation	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.962[a]	2	.031
Likelihood Ratio	7.070	2	.029
Linear-by-Linear Association	6.090	1	.014
N of Valid Cases	52		

a. 1 cells (16.7%) have expected count less than 5. The minimum expected count is 3.81.

TABLE NO. 3b: Age * Inference

Crosstab

			Inference								
			Mandibular Prognathism	Mandibular retrognathism	Maxillary and Mandibular prognathism	Maxillary Prognathisam and Mandibular retrognathism	Maxillary prognathism	Maxillary retrognathism	Maxillary Retrognathism and Mandibular prognathism	Others	Total
Age	Less than 20 years	Count	1	4	0	0	1	1	2	0	9
		% within Age	11.1%	44.4%	.0%	.0%	11.1%	11.1%	22.2%	.0%	100.0%
		% within Inference	50.0%	26.7%	.0%	.0%	6.3%	16.7%	66.7%	.0%	17.3%
	Between 20 - 23 years	Count	0	7	0	3	10	3	0	4	27
		% within Age	.0%	25.9%	.0%	11.1%	37.0%	11.1%	.0%	14.8%	100.0%
		% within Inference	.0%	46.7%	.0%	75.0%	62.5%	50.0%	.0%	100.0%	51.9%
	Above 23 years	Count	1	4	2	1	5	2	1	0	16
		% within Age	6.3%	25.0%	12.5%	6.3%	31.3%	12.5%	6.3%	.0%	100.0%
		% within Inference	50.0%	26.7%	100.0%	25.0%	31.3%	33.3%	33.3%	.0%	30.8%
Total		Count	2	15	2	4	16	6	3	4	52
		% within Age	3.8%	28.8%	3.8%	7.7%	30.8%	11.5%	5.8%	7.7%	100.0%
		% within Inference	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	20.066[a]	14	.128
Likelihood Ratio	23.059	14	.059
N of Valid Cases	52		

a. 22 cells (91.7%) have expected count less than 5. The minimum expected count is .35.

There is no significant for association between age and inference of the patient

TABLE NO. 3c: Age * Treatment

Crosstab

			Treatment			
			Doesn't want any treatment	Orhtodontic and Surgical Treatment	Orthodontic Treatment only	Total
Age	Less than 20 years	Count	2	5	2	9
		% within Age	22.2%	55.6%	22.2%	100.0%
		% within Treatment	16.7%	35.7%	7.7%	17.3%
	Between 20 - 23 years	Count	3	5	19	27
		% within Age	11.1%	18.5%	70.4%	100.0%
		% within Treatment	25.0%	35.7%	73.1%	51.9%
	Above 23 years	Count	7	4	5	16
		% within Age	43.8%	25.0%	31.3%	100.0%
		% within Treatment	58.3%	28.6%	19.2%	30.8%
Total		Count	12	14	26	52
		% within Age	23.1%	26.9%	50.0%	100.0%
		% within Treatment	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	12.867[a]	4	.012
Likelihood Ratio	12.371	4	.015
N of Valid Cases	52		

a. 5 cells (55.6%) have expected count less than 5. The minimum expected count is 2.08.

In this above table the value is 12.867 and association between age and treatment is significant
The P value is 0.012

It means patients between 20-23 years is come for treatment than other age groups

TABLE NO. 4a: Age * Reason for not willing for surgery

Crosstab

			Reason for not willing for surgery						
			Willing for Orthodontic or Orthodontic and Surgical Treatment	Psychological factor	Social factor	Economic factor	Psychological and Social factor	Psychology and Economic factor	Total
Age	Less than 20 years	Count	7	0	0	2	0	0	9
		% within Age	77.8%	.0%	.0%	22.2%	.0%	.0%	100.0%
		% within Reason for not willing for surgery	17.5%	.0%	.0%	50.0%	.0%	.0%	17.3%
	Between 20 - 23 years	Count	24	1	1	0	1	0	27
		% within Age	88.9%	3.7%	3.7%	.0%	3.7%	.0%	100.0%
		% within Reason for not willing for surgery	60.0%	50.0%	50.0%	.0%	50.0%	.0%	51.9%
	Above 23 years	Count	9	1	1	2	1	2	16
		% within Age	56.3%	6.3%	6.3%	12.5%	6.3%	12.5%	100.0%
		% within Reason for not willing for surgery	22.5%	50.0%	50.0%	50.0%	50.0%	100.0%	30.8%
Total		Count	40	2	2	4	2	2	52
		% within Age	76.9%	3.8%	3.8%	7.7%	3.8%	3.8%	100.0%
		% within Reason for not willing for surgery	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	12.684[a]	10	.242
Likelihood Ratio	15.047	10	.130
Linear-by-Linear Association	3.038	1	.081
N of Valid Cases	52		

a. 15 cells (83.3%) have expected count less than 5. The minimum expected count is .35.

In this above table the association between reason for not wiling surgery and age is not significant
The P value is 0.2

TABLE NO. 4b: Age * Reason for selecting orthodontic and surgical treatment

Crosstab

			Reason for selecting orthodontic and surgical treatment				
			Willing for Orthodontic Treatment only	Not willing for any Treatment	Psychological factor	Psychological and Social factor	Total
Age	Less than 20 years	Count	2	2	1	4	9
		% within Age	22.2%	22.2%	11.1%	44.4%	100.0%
		% within Reason for selecting orthodontic and surgical treatment	7.7%	16.7%	20.0%	44.4%	17.3%
	Between 20 - 23 years	Count	19	3	3	2	27
		% within Age	70.4%	11.1%	11.1%	7.4%	100.0%
		% within Reason for selecting orthodontic and surgical treatment	73.1%	25.0%	60.0%	22.2%	51.9%
	Above 23 years	Count	5	7	1	3	16
		% within Age	31.3%	43.8%	6.3%	18.8%	100.0%
		% within Reason for selecting orthodontic and surgical treatment	19.2%	58.3%	20.0%	33.3%	30.8%
Total		Count	26	12	5	9	52
		% within Age	50.0%	23.1%	9.6%	17.3%	100.0%
		% within Reason for selecting orthodontic and surgical treatment	100.0%	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	15.046[a]	6	.020
Likelihood Ratio	14.387	6	.026
Linear-by-Linear Association	.670	1	.413
N of Valid Cases	52		

a. 9 cells (75.0%) have expected count less than 5. The minimum expected count is .87.

In this above table the value is 15.046 and association between age and selection of orthodontic and surgical treatment is significant. The P value is 0.020

It means that people with 20-23 years willing to undergo surgical and orthodontic treatment

TABLE NO. 4c: Age * Reason for selecting orthodontic treatment only

Crosstab

			Reason for selecting orthodontic treatment only						
			Willing for Orthodontic and Surgical Treatment	Not willing for any Treatment	Psychological factor	Social factor	Economical factor	Social and Economical factor	Total
Age	Less than 20 years	Count	5	2	0	1	0	1	9
		% within Age	55.6%	22.2%	.0%	11.1%	.0%	11.1%	100.0%
		% within Reason for selecting orthodontic treatment only	35.7%	16.7%	.0%	20.0%	.0%	16.7%	17.3%
	Between 20 - 23 years	Count	5	3	5	4	6	4	27
		% within Age	18.5%	11.1%	18.5%	14.8%	22.2%	14.8%	100.0%
		% within Reason for selecting orthodontic treatment only	35.7%	25.0%	62.5%	80.0%	85.7%	66.7%	51.9%
	Above 23 years	Count	4	7	3	0	1	1	16
		% within Age	25.0%	43.8%	18.8%	.0%	6.3%	6.3%	100.0%
		% within Reason for selecting orthodontic treatment only	28.6%	58.3%	37.5%	.0%	14.3%	16.7%	30.8%
Total		Count	14	12	8	5	7	6	52
		% within Age	26.9%	23.1%	15.4%	9.6%	13.5%	11.5%	100.0%
		% within Reason for selecting orthodontic treatment only	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	16.115[a]	10	.096
Likelihood Ratio	19.295	10	.037
Linear-by-Linear Association	.035	1	.852
N of Valid Cases	52		

a. 16 cells (88.9%) have expected count less than 5. The minimum expected count is .87.

In the above table the chi square value 16.115 and association between age and reason for selecting treatment is not significant
P value 0.096

Descriptives

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Age	52	18.00	25.00	22.2500	2.15001
Valid N (listwise)	52				

TABLE NO . 4d: Means

Report

Age

Gender	Mean	N	Std. Deviation
Male	22.5882	17	2.18114
Female	22.0857	35	2.14711
Total	22.2500	52	2.15001

The mean age of male patient were 22.5882 ± 2.18114

The mean age of female patient were 22.0857 ± 2.24711

Oneway

TABLE NO . 5a: Max incisior- NF angle and selection of treatment

Descriptives

Max inc-NF angle

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Patients doesn't need treatment	12	121.5000	8.05097	2.32412	116.3847	126.6153	104.00	135.00
Patients select Orthodontic treatment only	26	122.9423	14.96284	2.93445	116.8987	128.9859	79.00	152.00
Patients select Orthodontic and Surgical treatment	14	120.8571	9.98928	2.66975	115.0895	126.6248	109.00	147.00
Total	52	122.0481	12.24875	1.69860	118.6380	125.4582	79.00	152.00

ANOVA

Max inc-NF angle

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	44.252	2	22.126	.143	.868
Within Groups	7607.378	49	155.253		
Total	7651.630	51			

Post Hoc Tests

Multiple Comparisons

Dependent Variable: Max inc-NF angle

Scheffe

(I) Groups	(J) Groups	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Patients doesn't need treatment	Patients select Orthodontic treatment only	-1.44231	4.34844	.947	-12.4200	9.5354
	Patients select Orthodontic and Surgical treatment	.64286	4.90175	.991	-11.7317	13.0174
Patients select Orthodontic treatment only	Patients doesn't need treatment	1.44231	4.34844	.947	-9.5354	12.4200
	Patients select Orthodontic and Surgical treatment	2.08516	4.13046	.881	-8.3422	12.5126
Patients select Orthodontic and Surgical treatment	Patients doesn't need treatment	-.64286	4.90175	.991	-13.0174	11.7317
	Patients select Orthodontic treatment only	-2.08516	4.13046	.881	-12.5126	8.3422

Oneway

TABLE NO. 5b: Mand inc-MP angle and selection of treatment

Descriptives

Mand inc-MP angle

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Patients doesn't need treatment	12	104.1250	8.88596	2.56515	98.4791	109.7709	93.00	116.00
Patients select Orthodontic treatment only	26	101.0385	10.62443	2.08362	96.7472	105.3298	65.00	118.50
Patients select Orthodontic and Surgical treatment	14	97.2857	7.41805	1.98256	93.0027	101.5688	77.00	109.50
Total	52	100.7404	9.61284	1.33306	98.0642	103.4166	65.00	118.50

ANOVA

Mand inc-MP angle

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	306.864	2	153.432	1.706	.192
Within Groups	4405.881	49	89.916		
Total	4712.745	51			

Post Hoc Tests

Multiple Comparisons

Dependent Variable: Mand inc-MP angle

Scheffe

(I) Groups	(J) Groups	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Patients doesn't need treatment	Patients select Orthodontic treatment only	3.08654	3.30927	.650	-5.2678	11.4408
	Patients select Orthodontic and Surgical treatment	6.83929	3.73036	.197	-2.5780	16.2566
Patients select Orthodontic treatment only	Patients doesn't need treatment	-3.08654	3.30927	.650	-11.4408	5.2678
	Patients select Orthodontic and Surgical treatment	3.75275	3.14339	.495	-4.1828	11.6883
Patients select Orthodontic and Surgical treatment	Patients doesn't need treatment	-6.83929	3.73036	.197	-16.2566	2.5780
	Patients select Orthodontic treatment only	-3.75275	3.14339	.495	-11.6883	4.1828

Oneway

TABLE NO .5c: MP-HP angle and selection of treatment

Descriptives

MP-HP angle

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Patients doesn't need treatment	12	21.2083	4.29830	1.24081	18.4773	23.9393	16.00	30.50
Patients select Orthodontic treatment only	26	25.5962	6.61063	1.29645	22.9261	28.2662	15.00	41.00
Patients select Orthodontic and Surgical treatment	14	31.1071	7.99321	2.13628	26.4920	35.7223	18.00	46.00
Total	52	26.0673	7.37113	1.02219	24.0152	28.1194	15.00	46.00

ANOVA

MP-HP angle

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	644.686	2	322.343	7.428	.002
Within Groups	2126.328	49	43.394		
Total	2771.014	51			

Post Hoc Tests

Multiple Comparisons

Dependent Variable: MP-HP angle

Scheffe

(I) Groups	(J) Groups	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Patients doesn't need treatment	Patients select Orthodontic treatment only	-4.38782	2.29896	.173	-10.1916	1.4159
	Patients select Orthodontic and Surgical treatment	-9.89881*	2.59149	.002	-16.4411	-3.3566
Patients select Orthodontic treatment only	Patients doesn't need treatment	4.38782	2.29896	.173	-1.4159	10.1916
	Patients select Orthodontic and Surgical treatment	-5.51099	2.18372	.050	-11.0238	.0018
Patients select Orthodontic and Surgical treatment	Patients doesn't need treatment	9.89881*	2.59149	.002	3.3566	16.4411
	Patients select Orthodontic treatment only	5.51099	2.18372	.050	-.0018	11.0238

*. The mean difference is significant at the .05 level.

There is no significant between Max inc-Nf angle and selection of treatment, and Mand inc-Mp angle and selection of treatment.

The p value of MP-HP angle 0.02
It means there is significant association between Mp-Hp angle and selection of treatment.

More MP-HP angle selected orthodontic and surgical treatment and Mp-HP angle near to normal value doesnot select any treatment.

Crosstabs TABLE NO. 5d: Middle third and lower third face height and selection of treatment

Middle third and lower third face height * Groups Crosstabulation

			Groups			
			Patients doesn't need treatment	Patients select Orthodontic treatment only	Patients select Orthodontic and Surgical treatment	Total
Middle third and lower third face height	1:0.8	Count	2	5	0	7
		% within Middle third and lower third face height	28.6%	71.4%	.0%	100.0%
		% within Groups	16.7%	19.2%	.0%	13.5%
	1:0.9	Count	3	6	4	13
		% within Middle third and lower third face height	23.1%	46.2%	30.8%	100.0%
		% within Groups	25.0%	23.1%	28.6%	25.0%
	1:1	Count	3	5	5	13
		% within Middle third and lower third face height	23.1%	38.5%	38.5%	100.0%
		% within Groups	25.0%	19.2%	35.7%	25.0%
	1:1.01	Count	1	1	0	2
		% within Middle third and lower third face height	50.0%	50.0%	.0%	100.0%
		% within Groups	8.3%	3.8%	.0%	3.8%
	1:1.02	Count	0	1	1	2
		% within Middle third and lower third face height	.0%	50.0%	50.0%	100.0%
		% within Groups	.0%	3.8%	7.1%	3.8%
	1:1.03	Count	1	0	1	2
		% within Middle third and lower third face height	50.0%	.0%	50.0%	100.0%
		% within Groups	8.3%	.0%	7.1%	3.8%
	1:1.04	Count	0	1	0	1
		% within Middle third and lower third face height	.0%	100.0%	.0%	100.0%
		% within Groups	.0%	3.8%	.0%	1.9%
	1:1.05	Count	0	1	0	1
		% within Middle third and lower third face height	.0%	100.0%	.0%	100.0%
		% within Groups	.0%	3.8%	.0%	1.9%
	1:1.06	Count	0	2	1	3
		% within Middle third and lower third face height	.0%	66.7%	33.3%	100.0%
		% within Groups	.0%	7.7%	7.1%	5.8%
	1:1.1	Count	2	3	1	6
		% within Middle third and lower third face height	33.3%	50.0%	16.7%	100.0%
		% within Groups	16.7%	11.5%	7.1%	11.5%
	1:1.3	Count	0	0	1	1
		% within Middle third and lower third face height	.0%	.0%	100.0%	100.0%
		% within Groups	.0%	.0%	7.1%	1.9%
	1:1.5	Count	0	1	0	1
		% within Middle third and lower third face height	.0%	100.0%	.0%	100.0%
		% within Groups	.0%	3.8%	.0%	1.9%
Total		Count	12	26	14	52
		% within Middle third and lower third face height	23.1%	50.0%	26.9%	100.0%
		% within Groups	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	14.893[a]	22	.867
Likelihood Ratio	19.914	22	.588
N of Valid Cases	52		

a. 34 cells (94.4%) have expected count less than 5. The minimum expected count is .23.

There is no significant association between middle and lower third face height ratio and selection of treatment.

Crosstabs

TABLE NO. 6a: Selection of treatment* Maxillary protrusion

Selection of Treatment * Maxillary Protrusion Crosstabulation

			Maxillary Protrusion		
			No	Yes	Total
Selection of Treatment	Doesnot Want any Treatment	Count	8	4	12
		% within Selection of Treatment	66.7%	33.3%	100.0%
		% within Maxillary Protrusion	24.2%	21.1%	23.1%
	Need Orthodontic Treatment only	Count	12	14	26
		% within Selection of Treatment	46.2%	53.8%	100.0%
		% within Maxillary Protrusion	36.4%	73.7%	50.0%
	Need Orthodontic and SurgicalTreatment only	Count	13	1	14
		% within Selection of Treatment	92.9%	7.1%	100.0%
		% within Maxillary Protrusion	39.4%	5.3%	26.9%
Total		Count	33	19	52
		% within Selection of Treatment	63.5%	36.5%	100.0%
		% within Maxillary Protrusion	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.629[a]	2	.013
Likelihood Ratio	9.900	2	.007
Linear-by-Linear Association	2.271	1	.132
N of Valid Cases	52		

a. 1 cells (16.7%) have expected count less than 5. The minimum expected count is 4.38.

Chi square value 8.629 for the association between selection of treatment and maxillary protrusion is significant with P = 0.013
It reveals that there is significant association between selection of treatment and maxillary protrusive patients
Patients with maxillary protrusion generally go for orthodontic treatment.

Crosstabs

TABLE NO. 6b: Selection of Treatment * Maxillary Retrusion

Crosstab

			Maxillary Retrusion		
			No	Yes	Total
Selection of Treatment	Doesnot Want any Treatment	Count	12	0	12
		% within Selection of Treatment	100.0%	.0%	100.0%
		% within Maxillary Retrusion	24.5%	.0%	23.1%
	Need Orthodontic Treatment only	Count	24	2	26
		% within Selection of Treatment	92.3%	7.7%	100.0%
		% within Maxillary Retrusion	49.0%	66.7%	50.0%
	Need Orthodontic and SurgicalTreatment only	Count	13	1	14
		% within Selection of Treatment	92.9%	7.1%	100.0%
		% within Maxillary Retrusion	26.5%	33.3%	26.9%
Total		Count	49	3	52
		% within Selection of Treatment	94.2%	5.8%	100.0%
		% within Maxillary Retrusion	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.960[a]	2	.619
Likelihood Ratio	1.633	2	.442
Linear-by-Linear Association	.545	1	.461
N of Valid Cases	52		

a. 3 cells (50.0%) have expected count less than 5. The minimum expected count is .69.

There is no significant association between selection of treatment and maxillary retrusion.

TABLE NO. 6c: Selection of Treatment * Mandibular Protrusion

Crosstab

			Mandibular Protrusion		
			No	Yes	Total
Selection of Treatment	Doesnot Want any Treatment	Count	11	1	12
		% within Selection of Treatment	91.7%	8.3%	100.0%
		% within Mandibular Protrusion	22.4%	33.3%	23.1%
	Need Orthodontic Treatment only	Count	25	1	26
		% within Selection of Treatment	96.2%	3.8%	100.0%
		% within Mandibular Protrusion	51.0%	33.3%	50.0%
	Need Orthodontic and SurgicalTreatment only	Count	13	1	14
		% within Selection of Treatment	92.9%	7.1%	100.0%
		% within Mandibular Protrusion	26.5%	33.3%	26.9%
Total		Count	49	3	52
		% within Selection of Treatment	94.2%	5.8%	100.0%
		% within Mandibular Protrusion	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.371[a]	2	.831
Likelihood Ratio	.373	2	.830
Linear-by-Linear Association	.009	1	.923
N of Valid Cases	52		

a. 3 cells (50.0%) have expected count less than 5. The minimum expected count is .69.

There is no significant association between mandibular protrusive patient and selection of treatment

TABLE NO. 6d: Selection of Treatment * Mandibular Retrusion

Crosstab

			Mandibular Retrusion		
			No	Yes	Total
Selection of Treatment	Doesnot Want any Treatment	Count	10	2	12
		% within Selection of Treatment	83.3%	16.7%	100.0%
		% within Mandibular Retrusion	27.8%	12.5%	23.1%
	Need Orthodontic Treatment only	Count	23	3	26
		% within Selection of Treatment	88.5%	11.5%	100.0%
		% within Mandibular Retrusion	63.9%	18.8%	50.0%
	Need Orthodontic and SurgicalTreatment only	Count	3	11	14
		% within Selection of Treatment	21.4%	78.6%	100.0%
		% within Mandibular Retrusion	8.3%	68.8%	26.9%
Total		Count	36	16	52
		% within Selection of Treatment	69.2%	30.8%	100.0%
		% within Mandibular Retrusion	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	20.652[a]	2	.000
Likelihood Ratio	20.235	2	.000
Linear-by-Linear Association	12.486	1	.000
N of Valid Cases	52		

a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is 3.69.

The chi square value is 20.652 for the association between selection of treatment and mandibular retrusion is significant . The P Value is 0.000

It reveals that there is significant association between selection of treatment and mandibular retrusion
Patient with mandibular retrusion generally go for orthodontic and surgical treatment.

TABLE NO. 6e: Selection of Treatment * Maxillary Protrusion and Mandibular Protrusion

Crosstab

			Maxillary Protrusion and Mandibular Protrusion		
			No	Yes	Total
Selection of Treatment	Doesnot Want any Treatment	Count	8	4	12
		% within Selection of Treatment	66.7%	33.3%	100.0%
		% within Maxillary Protrusion and Mandibular Protrusion	17.0%	80.0%	23.1%
	Need Orthodontic Treatment only	Count	25	1	26
		% within Selection of Treatment	96.2%	3.8%	100.0%
		% within Maxillary Protrusion and Mandibular Protrusion	53.2%	20.0%	50.0%
	Need Orthodontic and SurgicalTreatment only	Count	14	0	14
		% within Selection of Treatment	100.0%	.0%	100.0%
		% within Maxillary Protrusion and Mandibular Protrusion	29.8%	.0%	26.9%
Total		Count	47	5	52
		% within Selection of Treatment	90.4%	9.6%	100.0%
		% within Maxillary Protrusion and Mandibular Protrusion	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.252[a]	2	.006
Likelihood Ratio	9.168	2	.010
Linear-by-Linear Association	7.651	1	.006
N of Valid Cases	52		

a. 3 cells (50.0%) have expected count less than 5. The minimum expected count is 1.15.

There is significant association between selection of treatment and maxillary and mandibular protrusion. The P value – 0.06. Most of the Maxillary and mandibular protrusive patient doesnot want any treatment

TABLE NO. 6f: Selection of Treatment * Maxillary Protrusion and Mandibular Retrusion

Crosstab

			Maxillary Protrusion and Mandibular Retrusion		
			No	Yes	Total
Selection of Treatment	Doesnot Want any Treatment	Count	12	0	12
		% within Selection of Treatment	100.0%	.0%	100.0%
		% within Maxillary Protrusion and Mandibular Retrusion	24.5%	.0%	23.1%
	Need Orthodontic Treatment only	Count	23	3	26
		% within Selection of Treatment	88.5%	11.5%	100.0%
		% within Maxillary Protrusion and Mandibular Retrusion	46.9%	100.0%	50.0%
	Need Orthodontic and SurgicalTreatment only	Count	14	0	14
		% within Selection of Treatment	100.0%	.0%	100.0%
		% within Maxillary Protrusion and Mandibular Retrusion	28.6%	.0%	26.9%
Total		Count	49	3	52
		% within Selection of Treatment	94.2%	5.8%	100.0%
		% within Maxillary Protrusion and Mandibular Retrusion	100.0%	100.0%	100.0%

There is no significant association between selection of treatment and maxillary protrusion and mandibular retrusion.

TABLE NO. 6g: Selection of Treatment * Maxillary Retrusion and Mandibular Protrusion

Crosstab

			Maxillary Retrusion and Mandibular Protrusion		
			No	Yes	Total
Selection of Treatment	Doesnot Want any Treatment	Count	11	1	12
		% within Selection of Treatment	91.7%	8.3%	100.0%
		% within Maxillary Retrusion and Mandibular Protrusion	21.6%	100.0%	23.1%
	Need Orthodontic Treatment only	Count	26	0	26
		% within Selection of Treatment	100.0%	.0%	100.0%
		% within Maxillary Retrusion and Mandibular Protrusion	51.0%	.0%	50.0%
	Need Orthodontic and SurgicalTreatment only	Count	14	0	14
		% within Selection of Treatment	100.0%	.0%	100.0%
		% within Maxillary Retrusion and Mandibular Protrusion	27.5%	.0%	26.9%
Total		Count	51	1	52
		% within Selection of Treatment	98.1%	1.9%	100.0%
		% within Maxillary Retrusion and Mandibular Protrusion	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.399[a]	2	.183
Likelihood Ratio	2.999	2	.223
Linear-by-Linear Association	2.163	1	.141
N of Valid Cases	52		

a. 3 cells (50.0%) have expected count less than 5. The minimum expected count is .23.

There is no significant association between selection of treatment and maxillary retrusion and mandibular protrusion.

TABLE NO. 6h: Selection of Treatment * Others

Crosstab

			Others		
			No	Yes	Total
Selection of Treatment	Doesnot Want any Treatment	Count	12	0	12
		% within Selection of Treatment	100.0%	.0%	100.0%
		% within Others	24.0%	.0%	23.1%
	Need Orthodontic Treatment only	Count	24	2	26
		% within Selection of Treatment	92.3%	7.7%	100.0%
		% within Others	48.0%	100.0%	50.0%
	Need Orthodontic and SurgicalTreatment only	Count	14	0	14
		% within Selection of Treatment	100.0%	.0%	100.0%
		% within Others	28.0%	.0%	26.9%
Total		Count	50	2	52
		% within Selection of Treatment	96.2%	3.8%	100.0%
		% within Others	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.080[a]	2	.353
Likelihood Ratio	2.853	2	.240
Linear-by-Linear Association	.006	1	.938
N of Valid Cases	52		

a. 3 cells (50.0%) have expected count less than 5. The minimum expected count is .46.

There is no significant association between patient have other type of malocclusion and selection of treatment.

TABLE NO. 7a: Selection of Treatment * Psychological Factor

Crosstab

			Psychological Factor		
			No	Yes	Total
Selection of Treatment	Doesnot Want any Treatment	Count	10	2	12
		% within Selection of Treatment	83.3%	16.7%	100.0%
		% within Psychological Factor	27.0%	13.3%	23.1%
	Need Orthodontic Treatment only	Count	18	8	26
		% within Selection of Treatment	69.2%	30.8%	100.0%
		% within Psychological Factor	48.6%	53.3%	50.0%
	Need Orthodontic and SurgicalTreatment only	Count	9	5	14
		% within Selection of Treatment	64.3%	35.7%	100.0%
		% within Psychological Factor	24.3%	33.3%	26.9%
Total		Count	37	15	52
		% within Selection of Treatment	71.2%	28.8%	100.0%
		% within Psychological Factor	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.236[a]	2	.539
Likelihood Ratio	1.321	2	.517
Linear-by-Linear Association	1.082	1	.298
N of Valid Cases	52		

a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is 3.46.

There is no significant association between selection of treatment and psychological factor. The P value is 0.539

TABLE NO. 7b: Selection of Treatment * Social Factor

Crosstab

			Social Factor		
			No	Yes	Total
Selection of Treatment	Doesnot Want any Treatment	Count	10	2	12
		% within Selection of Treatment	83.3%	16.7%	100.0%
		% within Social Factor	22.2%	28.6%	23.1%
	Need Orthodontic Treatment only	Count	21	5	26
		% within Selection of Treatment	80.8%	19.2%	100.0%
		% within Social Factor	46.7%	71.4%	50.0%
	Need Orthodontic and SurgicalTreatment only	Count	14	0	14
		% within Selection of Treatment	100.0%	.0%	100.0%
		% within Social Factor	31.1%	.0%	26.9%
Total		Count	45	7	52
		% within Selection of Treatment	86.5%	13.5%	100.0%
		% within Social Factor	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.026[a]	2	.220
Likelihood Ratio	4.817	2	.090
Linear-by-Linear Association	1.672	1	.196
N of Valid Cases	52		

a. 3 cells (50.0%) have expected count less than 5. The minimum expected count is 1.62.

There is no significant association between social factor and selection of treatment

TABLE NO. 7c: Selection of Treatment * Economic Factor

Crosstab

			Economic Factor		
			No	Yes	Total
Selection of Treatment	Doesnot Want any Treatment	Count	8	4	12
		% within Selection of Treatment	66.7%	33.3%	100.0%
		% within Economic Factor	19.5%	36.4%	23.1%
	Need Orthodontic Treatment only	Count	19	7	26
		% within Selection of Treatment	73.1%	26.9%	100.0%
		% within Economic Factor	46.3%	63.6%	50.0%
	Need Orthodontic and SurgicalTreatment only	Count	14	0	14
		% within Selection of Treatment	100.0%	.0%	100.0%
		% within Economic Factor	34.1%	.0%	26.9%
Total		Count	41	11	52
		% within Selection of Treatment	78.8%	21.2%	100.0%
		% within Economic Factor	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.342[a]	2	.069
Likelihood Ratio	8.097	2	.017
Linear-by-Linear Association	4.438	1	.035
N of Valid Cases	52		

a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is 2.54.

There is no significant association between economic factor and selection of treatment

TABLE NO. 7d: Selection of Treatment * Psychological and Social Factor

Crosstab

			Psychological and Social Factor		
			No	Yes	Total
Selection of Treatment	Doesnot Want any Treatment	Count	10	2	12
		% within Selection of Treatment	83.3%	16.7%	100.0%
		% within Psychological and Social Factor	24.4%	18.2%	23.1%
	Need Orthodontic Treatment only	Count	26	0	26
		% within Selection of Treatment	100.0%	.0%	100.0%
		% within Psychological and Social Factor	63.4%	.0%	50.0%
	Need Orthodontic and SurgicalTreatment only	Count	5	9	14
		% within Selection of Treatment	35.7%	64.3%	100.0%
		% within Psychological and Social Factor	12.2%	81.8%	26.9%
Total		Count	41	11	52
		% within Selection of Treatment	78.8%	21.2%	100.0%
		% within Psychological and Social Factor	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	22.736[a]	2	.000
Likelihood Ratio	24.600	2	.000
Linear-by-Linear Association	9.812	1	.002
N of Valid Cases	52		

a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is 2.54.

The chi square value is 22.736 and association between selection of treatment and psychological social factor is significant. The P value is 0.000.
This reveals that the because of psychological and social factor patient select orthodontic and surgical treatment.

TABLE NO. 7e: Selection of Treatment * Psychological and Economic Factor

Crosstab

			Psychological and Economic Factor		
			No	Yes	Total
Selection of Treatment	Doesnot Want any Treatment	Count	10	2	12
		% within Selection of Treatment	83.3%	16.7%	100.0%
		% within Psychological and Economic Factor	20.0%	100.0%	23.1%
	Need Orthodontic Treatment only	Count	26	0	26
		% within Selection of Treatment	100.0%	.0%	100.0%
		% within Psychological and Economic Factor	52.0%	.0%	50.0%
	Need Orthodontic and SurgicalTreatment only	Count	14	0	14
		% within Selection of Treatment	100.0%	.0%	100.0%
		% within Psychological and Economic Factor	28.0%	.0%	26.9%
Total		Count	50	2	52
		% within Selection of Treatment	96.2%	3.8%	100.0%
		% within Psychological and Economic Factor	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.933[a]	2	.031
Likelihood Ratio	6.141	2	.046
Linear-by-Linear Association	4.413	1	.036
N of Valid Cases	52		

a. 3 cells (50.0%) have expected count less than 5. The minimum expected count is .46.

There is significant association between selection of treatment and psychological economic factor. The chi square value 6.933 and P value 0.031.

This reveals that because of psychological and economic factor patient does not select any treatment.

The present study was conducted to evaluate the patients decision to undergo orthodontic and surgical treatment and not willing for any type of treatment even though patient have malocculusion and evaluate the psychological,social,economical factors which influence them to make decision.

In our study all patients within the age group of 18-25 years participated. The mean age of Male patients were 22.5882± 2.18114 and mean age of female patients 22.0857±2.24711 [Table NO 4d]. Out of 52 patients 17 were male patients and 35 were female patients,9 patients less than 20 years and 27 patients between 20-23 years and 16 were above 23 years. Most of the patients in our study 30 students and 22 were employed.

Statistically insignificant changes identified between

Gender and age P value 0.867 [Table 2a]

Gender and inference P value 0.710 [Table 2c]

Gender and treatment P value 0.335 [Table 2d]

Gender and not willing for surgery P 0.932 [Table 2e]

Gender and selection of orthodontic and surgical treatment P value 0.258 [Table 2f]

Gender and selection of orthodontic treatment P value 0.737 [Table 2g]

It means that No female male difference for selecting particular treatment and declining particular treatment.

Statistically significant changes were identified between

Age and selection of particular treatment P value 0.012 [Table 3c]

Age and selection of treatment of orthodontic and surgical treatment P value 0.020 [Table 4b]

Age and selection of orthodontic treatment P value 0.096 [Table 4c]

It means that people with 20-23 years come for treatment and willing to undergo surgical and orthodontic treatment

Statistically insignificant changes were identified between

Age and not willing for surgery P value 0.242 [Table 4a]

Statistically insignificant changes identified between

Max incisor –NF angle and selection of treatment P value 0.868 [Table 5a]

Mand incisor –MP angle and selection of treatment P value 0.192 [Table 5b]

Middle third and lower third face height ratio and selection of treatment

P value – 0.867[Table 5c]

Statistically significant changes identified between

MP –HP angle and selection of treatment P value 0.02 [Table 5c]

More MP-HP angle patients selected orthodontic and surgical treatment and Low

MP-HP angle patients did not select any treatment .

Statistically significant changes identified between

Maxillary protrusive patients and selection of treatment P value 0.013 [Table 6a]

Mandibular retrusive patients and selection of treatment P value 0.00 [Table 6d]

Maxillary protrusion and mandibular protrusive patients and selection of Treatment. The P value 0.006 [Table 6e]

Most of the maxillary protrusive patients select orthodontic treatment and mandibular retrusive patients select orthodontic and surgical treatment. Both maxillary and mandibular protrusive patients did not want any treatment.

Statistically insignificant changes were identified between

Maxillary retrusion and selection of treatment P value 0.619 [Table 6b]

Mandibular protrusion and selection of treatment P value 0.831 [Table 6c]

Maxillary protrusion and mandibular retrusion P value 0.204 [Table 6f]

Maxillary retrusion and mandibular protrusion P value 0.183 [Table 6g]

Other type of malocclusion and selection of treatment P value 0.353 [Table 6h]

Statistically significant changes were identified between

Psychological and social factor and selection of treatment P value 0.000 [Table 7d]

Psychological and economic factor and selection of treatment P value 0.031 [Table 7e]

Economic factor and selection of treatment P value 0.069 [Table 7c]

Because of psychological and social factor patient selected orthodontic treatment only and psychological and economic factor patient did not select any treatment.

Statistically insignificant changes between

Psychological factor and selection of treatment P value 0.539 [Table 7a]

Social factor and selection of treatment P value 0.220 [Table 7b].

DISCUSSION

The dentofacial complex however is connected ultimately with breathing, thinking, feeling human being with unique response to surgical stimuli. In the popular psychocybernetics Maxwell maltz wrote when you change a man's face you almost invariably change his future, change his physical image, and nearly always change man his personality, his behaviour and even his basic talents and abilities.[10]

Patients present with dentofacial skeletal deformities which may occur as a result of congenital, developmental, or traumatic events that disrupt the normal growth and development of the facial skeleton.[11] Dentofacial deformities may have a direct bearing on personality structure, attitude toward oneself, one's appearance, one's behaviour and negative effect on self confidence and self image. [12].

A poor satisfaction with facial appearance may not result from malocclusion or craniofacial malformation alone, but may be a function of patients reactions to a society that attaches a stigma to those who are different psychological problems of the facially impaired are social in nature, in that the deformity becomes a component of the person's social identity.[13,14]

A normal dentofacial appearance cannot solely constructed from measurable and biological variables. Patients view normality in terms of features that are acceptable biologically, psychologically, socially.[15] People experienced of his own appearance are often quite different from how others see and evaluate them. Good looks do not guarantee a subjectively positive body image nor is a plain appearance necessarily associated with a problematic body image.[16]

Facial and dental anomalies that are sufficient to affect a person's appearance might put that person at a social disadvantage.[7] When a dento facial deformity is so severe that an acceptable improvements cannot be obtained by growth modifications or orthodontic camouflage combination of orthodontic treatment and orthognathic surgery might be only viable treatment option.[17] Individual whose facial morphology differs from the normal to such an extent that they seek treatment in order to make themselves acceptable .[18]

Orthognathic treatment is used routinely to correct severe jaw discrepancies using combination of fixed orthodontic appliance and jaw surgery. The main indication for this treatment are dentoskeletal disproportions that are so severe they cannot be corrected using less complex treatment options such as orthodontic appliance alone.[8]

Main benefits of orthognathic treatment are likely to be psychosocial in nature and majority of patient who seek treatment because of concerns about their dento facial aesthetics.[7] It is easy to imagine that there is a linear relationship between the severity of psychosocial disturbance and degree of deformity.

A patient decision to undergo orthognathic surgery is based on multiple needs and motives, social and psychological concerns, cultural values, cost of treatment, recovery time and perceived benefits (improved function, appearance, and or self esteem).[7]

Over the Past few years there has been significant decline in number of orthognathic surgical cases. The primary reason for this decline is significantly decreased reimbursement from major medical insurance carriers with decreasing

financial reimbursement. There has been loss of surgeon interest in orthognathic surgery. Patient perceive that orthognathic surgery is too expensive and seek alternative treatment modalities.[11 19]

In previous study Bell et al stated that inspite of recommendation for surgical treatment by dental specialist as indicated by cephalometric measurements, self perceptions of profile are more important decision to undergo surgery. [20]

Kiyak et al evaluated three group of patients who select surgery and orthodontic treatment and no treatment. Patient who decided to undergo surgery were dissatisfied with their facial features. [21]

The present study was conducted to evaluate psychology of three groups of patients who have dentofacial deformities. Those who elect surgery and those who elect surgical and orthodontic treatment and those who elect orthodontic treatment only.

All the patients were assessed radiologically. Lateral cephalogram was taken and assessed, patient with dentofacial deformities were selected and patient decision to undergo surgery and psychology was assessed by using self administered questionnaire.

Cephalometrics is a reliable and consistent diagnostic modality for orthognathic surgery planning and by planning surgery within the range of normal cephalometric norms one can achieve perfect dentofacial balance and harmony.

A commonly used instrument in previous studies has been a self administered generic psychological questionnaire, the short form health survey and oral health

related quality of life questionnaire which is designed as a screening tool for psychological distress and psychological disorders. [22 23,24]

The present study used specific individual questionnaires to precisely measure depression, anxiety, behaviour, and self esteem. This approach provides a much more is depth detected and comprehensive evaluation of the subject's psychological status.

In the present study approximately one third of patients accept the orthognathic treatment and people with 20-23 years accept to undergo surgical and orthodontic treatment. In previous studies shown that majority of orthognathic patients were under the age of 35 years and of higher socioeconomic status. It was assumed that younger patients with higher socioeconomic status would be less satisfied with their facial appearance. [25] A similar age range were reported by Phillips et al among 194 patients being considered for orthognathic treatment.[14] [,22]There was another study shown that the younger patients have more concerned about facial appearance and females also have more concerned about facial appearance. [26 27]

In our study no female and male difference for selecting particular treatment and declining particular treatment was found whereas in previous study Jorgan Garvil et al was found there was no difference between women or men or younger or older patients with a respect to facial appearance as a reason for surgical treatment.[28] Espeland et al Michael proothi et al was found that more females than male patients accept orthognathic surgery. However it was accepted that female have a high incidence of dentofacial deformities. [29, 30]

The majority of orthognathic group was female supporting the finding of other studies indicating that female patients were more likely to seek orthognathic treatment. [8,27] In another study by kiyak et al found both males and females desire a change in appearance.[31]

In a study by Ceib Phillips et al suggested that a slight elevation of psychological distress on average in patients seeking a diagnostic consultation for a skeletal disharmony. [32] Increased facial convexity in a study by bell et al 1985 representing majority of patients with mandibular hypoplasia accept for surgical orthodontic treatment.[29] In our study mandibular retrusive patient elect both orthodontic and surgical treatment and maxillary protrusive patient elect orthodontic treatment and bimaxillary protrusive patient doesn't want any treatment and high mandibular plane angle patients select surgical orthodontic treatment and low angle patient did not select any treatment.

Laufer et al found primary reason for seeking surgery was aesthetics followed by difficulty in chewing[33] and Athanasiou et al found major concerns were surgical risk followed by change of appearance and finance and Jensen examined the relationship between psychosocial factors and orthognathic surgery majority of patients reasons for undergoing surgery were psychosocial factor.[34]. Whereas in our study patients select orthodontic treatment because of psychosocial factors and refrain from treatment due to psychological and economical factors.

Vargo et al suggested that patients motives for treatment are not necessarily related to objectively determined need. Patients decide to seek attractiveness because they see what other lay persons see and or directly or indirectly affected by others reactions to their appearance.[35] In 1986 Kiyak et al reported an another study in

which who had elective orthognathic surgery significantly more dissatisfied with their pre treatment facial appearance than those who chose only orthodontic or no treatment.[36]

H. Asuman kiyak et al stated that people who elected surgery have dissatisfaction with their facial appearance than who elect orthodontic treatment and refrain from treatment.[5] Cunnigham stated that patients concentrate on specific areas they wish to improve such as dental appearance or facial profile rather than wide concept of self esteem.[37]

In our study one third of patient refrain from treatment mainly due to psychological and economic factors whereas there was another study shown that more than 50% refrain from treatment due to risk of nerve injury and unwanted side effects heard during consultation and long term orthodontic treatment in adulthood and discomfort and risk related to surgery are factors that discourage the patient.[29]

Orthognathic patients were psychologically normal except they had dissatisfaction with their facial appearance ,there was desire for operation was caused by a genuine physical abnormality rather than a perceived exaggerated aesthetic problem.[38]Most studies mentioned functional and aesthetic reasons as the main motives for seeking treatment.[39, 40, 41] Whereas oland et al stated oral function is the primary motive for seeking treatment.[42] L.H.H Cheng et al stated predominantly aesthetic reasons for seeking treatment and secondarily functional reason.[43 44]

This study conclude that most of patient refrain from treatment because of psychological factor (fear of surgery and risks and nerve damage and unwanted side effects) and cost factors . Because of psychosocial factors patient select orthodontic

treatment only. In our study no significant relation between psychological factor, economic factor, social factor and selection of surgical orthodontic treatment was found.

SUMMARY& CONCLUSION

Over the past decade, orthognathic surgery has developing in it's for the correction of dentofacial complex abnormalities. Surgical procedures usually are not only by changes in facial appearance but also change in function. These changes often lead to psychological effects on patients in addition to changes in their social life. A patient wants a cure but none will enjoy the surgical procedure and what follows. Our study evaluated three groups of patients those who want surgical orthodontic treatment and those who want orthodontic treatment and those who did not want any treatment and concludes because of psychological and social factors patient selected orthodontic treatment. One third of patient refrained from surgical treatment because of psychology and economic factors. No gender difference for selecting and declining particular treatment found in our study and people of younger age group 20-23 years willing for surgical orthodontic treatment, and high angle patients and mandibular retrusive patient select surgical orthodontic treatment. The most frequently reported motives for risk of side effects and cost factor. Patient's motives and fears are explored during consultation and that the information provided should be adapted to the potential risks and benefits related to the particular treatment. Surgeon must work and make surgical treatment more affordable and available. Surgeon must reinforce the importance and value of orthognathic surgery to insurance providers and make better arrangement for financial assistance.

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ANNEXURES

PATIENT DETAILS

Annexure I

S.No	Name	Age/sex	Address	Occupation	Upper and middle facial height ratio	Max inc to NF angle	Mand inc to MP angle	MP -HP angle	Inference	Willing to undergo
1	Mr.Shyam	25/M	Kollam	Staff nurse	1:1	121	118.5	25	Maxillary protrusion	Orthodontic treatment
2	Ms.Sudha	25/F	Sowripalayam	Working in private sector	1:0.9	115.5	104	22	Maxillary protrusion	Orthodontic treatment
3	Mr.Dinesh darshan	23/M	Salem	Student	1:1.1	118.5	104	19	Maxillary protrusion	Doesn't want any treatment
4	Ms.Mercy	23/F	Tirunelveli	Staff nurse	1:0.8	116	93	33	Maxillary protrusion	Orthodontic treatment
5	Mrs.Sreeja	25/F	Erode	Staff nurse	1:1.03	117	116	22	Mandibular retrusion	Doesn't want any treatment
6	Ms.Pournadevi	21/F	Virudhunagar	Student	1:1.1	111	65	32.5	Mandibular retrusion	Orthodontic treatment
7	Ms.Deepa	22/F	Salem	Student	1:0.8	121.5	112	25	Maxillary protrusion	Orthodontic treatment
8	Ms.Sandiyalakshmi	22/F	Tirupur	Student	1:1.1	122	100	21	Maxillary protrusion	Orhtodontic treatment and surgery
9	Ms.Lakshmi sai pujitha	22/F	Chennai	Student	1:1.04	79	91	31	Maxillary protrusion	Orthodontic treatment
10	Ms.Ambiga	24/F	Peelamedu	Student	1:1	124	95	35	Maxillary protruaion and mandibular retrusion	orthodontic treatment and surgery
11	Ms.Neeharika	21/F	Race course road Cbe	Student	1:1	135	77	28	Maxillary retrusion	orthodontic treatment and surgery
12	Mr.Thiruvikram	22/M	Karur	Student	1:1.06	113	105	26.5	Maxillary retrusion	orthodontic treatment
13	Ms.Sruthipriya	24/F	R.S puram Cbe	PG trainee	1:1.1	123	87	28.5	Maxillary retrusion	Orthodontic treatment
14	Ms.Iwin wilson	22/F	Thirrsur	Studint	1:1.01	108	100	36.5	Maxillary protrusion and mandibular retrusion	orthodontic treatment
15	Ms.Themozhi	22/F	Thudiyalur Cbe	Studint	1:1.05	115	102	29	Mandibular retrusion	Orthodontic treatment
16	Mr.mathan kumar	22/M	Coimbatore	Student	1:1.01	104	101	30.5	Mandibular retrusion	Doesn't want any treatment
17	Ms.Gayathri	19/F	Peelamedu	Student	1:1.03	122	102	36.5	Mandibular retrusion	Orhtodontic treatment and surgery
18	Mr.Mahesh	23/M	Ganapathy	Student	1:1.02	115	95	31	Maxillary protrusion and mandibular retrusion	orthodontic treatment and surgery
19	Mr.Jaisonjohnkaria	19/M	Singanallur	Student	1:1.3	109	102	30.5	Maxillary retrusion	orthodontic treatment and surgery
20	Mr.Balamurgan	22/M	Thudiyalur Cbe	Student	1:1.02	123	98	32.5	Maxillary retrusion	Orthodontic treatment
21	Mrs.Mahalakshmi	25/F	Sidco Cbe	Computer operator	1:0.9	125	96	46	Mandibular retrusion	orthodontic treatment and surgery
22	Mr.Jinith	21/M	Vellore	Student	1:1.06	116	109.5	27	Mandibular retrusion	Orhtodontic treatment and surgery
23	Ms.Vijayashanthi	25/F	Dindigul	Staff nurse	1:1	112.5	113	17	Maxillary protrusion	Doesn't want any treatment
24	Ms.Sathya	21/F	Peelamedu	Working in private sector	1:0.8	126	105	21	Maxillary protrusion	orthodontic treatment
25	Ms.Anitha	18/F	Coimbatore	Nursing assistant	1:0.9	128	104	31	Maxillary retrusion and mandibular protrusion	Orthodontic treatment
26	Ms.Anitha	21/F	Ganapathy	Student	1:0.8	126.5	105	20	Maxillary protrusion and mandibular retrusion	Orthodontic tratment
27	Mr.Murugesh	22/M	Sowripalayam	Supervisor	1:1.1	140	98	27	Skeletal open bite	Orthodontic treatment
28	Ms.Malliga	21/F	Coimbatore	Nursing assistant	1:0.8	140	98	27	Maxillary Protrusion Vertical deficiency	Orthodontic treatment
29	Ms.Sowmia	21/F	Coimbatore	Student	1:0.9	112	99	21.5	Mandibular retrusion	orthodontic treatment and surgery
30	Ms.Meenagayathri	22/F	Coimbatore	Student	1:0.9	130	110	18.5	Retrusive chin	Orthodontic treatment
31	Ms.Gowri	18/F	Peelamedu	Student	1:0.9	120	97	42	Mandibular retursion	orthodontic treatment and surgery
32	Ms.Shenbagam	21/F	Pappanaickenpalayam	Nursing assistant	1:1.06	150	104	26	Nursing assistant	Orthodontic treatment
33	Mr.Sivaprakash	18/M	Pappanaickenpalayam	Student	1:1	116.5	102.5	29	Mandibular retursion	orthodontic treatment and surgery
34	Mr.Aaseerpushparaj	23/M	Sulur	Working in private sector	1:09	110.5	105	15	Maxillary protrusion	Orthodontic treatment
35	Ms.Nivethitha	20/F	Dharapuram	Student	1:1	152	117.5	18	Maxillary protrusion	Othodontic treatment

PATIENT DETAILS *Annexure I*

36	Mr.Roginth vigneshwaran	20/M	Thudiyalur Cbe	Student	1:0.8	129	93	16	Maxillary retursion and mandibular protrusion	Doesn't want any treatment
37	Ms.Preethi	21/F	Periyanacikenpalayam	Beautician	1:0.9	131	98	16	Mandibular retursion	Orthodontic treatment
38	Ms.Jeeva	21/F	Karumathampatty	Student	1:1	122	111	24.5	Maxillary protrusion	Othodontic treatment
39	Ms.Ambiga	25/F	Ooty	Staff nurse	1:0.9	124	113	19	Maxillary protrusion	Doesn't want any treatment
40	Ms.Jeevitha	20/F	Peelamedu	Biochemistry technician	1:0.8	127.5	95	25	Mandibular protrusion	Doesn't want any treatment
41	Ms.Mahiba	23/F	Nagercoil	Staff nurse	1:1	113	101.5	16	Maxillary protrusion	Othodontic treatment
42	Mr.Vasanthakumar	25/F	Coimbatore	Banking professional	1:1	147	97	18	Mandibular protrusion	Orhtodontic treatment and surgery
43	Ms.Kanchana	25/F	Dindigul	Staff nurse	1:0.9	122.5	94	18	Maxillary retrusion and mandibular protrusion	Doesn't want any treatment
44	Ms.Muneeswari	25/F	Avarampalayam	Nursing assistant	1:1.5	140	101	24	Maxillary and mandibular protrusion	Orthodontic treatment
45	Ms.Sathyamari	22/F	Tanjore	Nursing assistant	1:1	120	107	20	Mandibular retursion	Doesn't want any treatment
46	Mr.Mayavaraj	24/M	Karur	Student	1:1.2	130	104	23.5	Maxillary and mandibular protrusion	Doesn't want any treatment
47	Mr.Premanand	25/M	Coimbatore	Student	1:1	124	111.5	18.5	Maxillary protrusion	Doesn't want any treatment
48	Ms.Pavithra	18/F	Saibaba colony	Student	1:0.9	114.5	100	32	Mandibular retursion	Orthodontic treatment and surgery
49	Ms.Abinaya	23/F	Nagercoil	Staff nurse	1:1	112	104.5	22	maxillary protrusion	Orthodontic treatment
50	Mr.Gowtham	25/M	Peelamedu	Student	1:1	129.5	89	41	Maxillary retrusion	Othodontic treatment
51	Mr.Selvaraj	25/F	Sowripalayam	Working in private sector	1:1.1	135	93.5	26	Mandibular retrusion	Doesn't want any treatment
52	Mr.Arunkumar	25/M	Ramanathapuram	working in private sector	1:1	114	90	35	Mandibular retrusion	Orthodontic treatment and surgery

Total Number of cases: 52
Male: 17
Female: 35

Maxillary prognathism: 14
Maxillary retrognathism: 6
Mandibular Prognathism: 4
Mandibular retrognathism: 14
Maxillary prognathisam and Mandibular retrognathism: 5
Maxillary retrognathism and Mandibular prognathism: 2
Maxillary and Mandibular prognathism: 3
Others : 4

PATIENT DETAILS *Annexure I*

Selection of Treatment:

	Orthodontic Treatement only	Orthodontic and Surgical Treatement	Doesn't want any treatment
Total	26	14	12
Male	5	6	5
Female	21	8	7

Reason for not willing for surgery

Psychological factor	Social factor	Economic factor	Psychology and social factor	Psychology and economic factor
2	2	4	2	2

Reason for selecting orthodontic and surgical treatment

Psychological factor	Psychology and Social factor
5	9

Reason for selecting orthodontic treatment only

Psychological factor	Social factor	Economic factor
8	5	7

QUESTIONNAIRE PROFORMA

PSYCHOLOGICAL EVALUATION OF PATIENT TOWARD ORTHOGNATHIC SURGERY

PATIENT DETAILS

Name:

Age/sex:

Occupation:

Address:

Contact Number:

Cheif complaint:

Diagnosis:

Treatment plan:

ORAL HEALTH RELATED QUALITY OF LIFE QUESTIONNAIRE

1) What bothers you a lot?
   a. Facial appearance b) tooth position c) both

2) Do you want any correction to your facial appearance/tooth position?
   a) Yes b) No

3) If yes what treatment are you willing to undergo?
   a) Orthodontic treatment only
   b) As per the doctors treatment plan which include surgery

4) If you are not willing for surgery why?
   a) I am afraid of surgery
      i) yes ii) No

   b) I cannot spend more money
      i) yes ii) No

c) I heard negative side effect from neighbour
i) yes ii) No

d) I don't want to change my facial appearance completely
i)yes ii) No

e) I am afraid of nerve damage
i)yes ii) No

ORTHOGNATHIC QUALITY OF LIFE QUESTIONNAIRE

1) I am self-conscious about the appearance of my teeth
i) yes ii) No

2) I have problems in biting
i) yes ii) No

3) I have problems in chewing
i) yes ii) No

4) I avoid some foods because the way my teeth meet
i) yes ii) No

5) I don't like eating in public places
i) yes ii) No

6) I get pains in my face or jaw
i) Yes ii) No

7) I don't like seeing a side view of my face
i) Yes ii) No

8) I spend a lot of time studying my face in the mirror
i) yes ii) No

9) I spend a lot of time studying my teeth in the mirror
i) yes ii) No

10) I dislike having my photograph taken
i) yes ii) No

11) I dislike being seen on video
i) yes ii) No

12) I am self conscious about my facial appearance
i) yes ii) No

13) I try to cover my mouth when I meet people for the first time
i) yes ii) No

14) I worry about meeting people for the first time
I) yes ii) No

15) I worry that people will make hurtful comments about my appearance
i) yes ii) no

16) I lack confidence when I am out socially
i) yes ii) No

17) I do not like smiling when I meet people
i) yes ii) No

18) I sometimes am depressed about my appearance
i) yes ii) No

19) I sometimes think that people are staring at me
i) yes ii) No

20) Comments about my appearance really upset me, even when I know people are only joking.
i)Yes ii) No